

DUAL-DAMASCENE BIT LINE STRUCTURES FOR MICROELECTRONIC
DEVICES AND METHODS OF FABRICATING MICROELECTRONIC DEVICES

ABSTRACT OF THE DISCLOSURE

The present invention is directed toward methods of fabricating components for microelectronic devices, microelectronic devices including memory cells or other components, and computers including memory devices. For example, one embodiment is directed toward a method of fabricating a memory cell on a workpiece having a substrate, a plurality of active areas in the substrate, and a dielectric layer over the active areas. One embodiment of the method includes constructing bit line contact openings in the dielectric layer over first portions of the active areas and cell plug openings over second portions of the active areas. The method also includes depositing a first conductive material into the bit line contact openings to form bit line contacts and into the cell plug openings to form cell plugs. This embodiment continues by forming a trench through an upper portion of a plurality of the bit line contacts and portions of the dielectric layer between bit line contacts. The trench has a first sidewall and a second sidewall. In certain embodiments, the method continues by fabricating a spacer made from a dielectric material along at least the first sidewall of the trench and then fabricating a bit line in the trench. The bit line is embedded into the bit line contacts. The bit line is electrically coupled to selected bit line contacts, but is electrically insulated from the cell plugs.